

### **What is Claimed is:**

1. A loading and unloading module for optical disk drives to transport an optical disc into or out of an optical disk drive, comprising:

5                    a track plate having a front end and a rear end, two guiding tracks located symmetrically on two sides of the front end and a rear track located on the rear end thereof;

                  a moving plate movably located above the track plate having a bottom track on a rear end thereof corresponding to the rear track and two moving tracks symmetrically located on two sides corresponding to the guiding tracks;

10                a guiding plate fixedly located above the moving plate having two transverse tracks located horizontally on two sides of a front end thereof;

                  an elastic mechanism connecting to the moving plate and the guiding plate to allow the moving plate and the guiding plate to move elastically and reciprocally relative to each other;

15                two front rollers movably coupled with the guiding tracks of the track plate, the moving tracks of the moving plate and the transverse tracks of the guiding plate;

                  a rear roller movably coupled with the rear track of the track plate and the bottom track of the moving plate; and

20                a guiding arm located above the guiding plate being movably and pivotally engaged with the moving plate, and having a rear end track to couple with the rear roller and a front end to couple with the front rollers.

2. The loading and unloading module for optical disk drives of claim 1, wherein each of the guiding tracks includes a main track and a secondary track, the secondary track communicating with a front end of the main track, the moving plate having a second

track corresponding to the secondary track.

3. The loading and unloading module for optical disk drives of claim 2, wherein main track has a side dead point on the outmost side.

4. The loading and unloading module for optical disk drives of claim 2, wherein main track has a front dead point on a front end.

5. The loading and unloading module for optical disk drives of claim 2, wherein main track has a rear dead point on a rear end.

6. The loading and unloading module for optical disk drives of claim 1, wherein the moving track includes a first track and a second track, and the moving plate having an opening in the center.

7. The loading and unloading module for optical disk drives of claim 1, wherein the moving plate includes at least one anchor track, the track plate having a plurality of anchoring bulged spots corresponding to the anchor track and movable reciprocally in the anchor track.

15 8. The loading and unloading module for optical disk drives of claim 1, wherein the moving plate has respectively a clamping section on two sides to clamp the track plate.

9. The loading and unloading module for optical disk drives of claim 1, wherein the moving plate has a bulged ridge and a recess section corresponding to a clamper of the optical disk drive to control the relative position of the clamper to the moving plate.

10. The loading and unloading module for optical disk drives of claim 1, wherein the elastic mechanism is a spring.

11. The loading and unloading module for optical disk drives of claim 1 further having a

guiding arm which has a front end track and a rear end track to couple respectively with the front rollers and the rear roller to control the rear roller to move synchronously with the front rollers.

12. The loading and unloading module for optical disk drives of claim 1 further having

5 an actuating member to couple with the front rollers to move the disc out.

13. The loading and unloading module for optical disk drives of claim 1 further having a

detection module to detect the position of the moving plate.

14. The loading and unloading module for optical disk drives of claim 1 further having a

stopping member located on an inner side of a disc entrance to prevent repetitive disc

10 loading.

15. The loading and unloading module for optical disk drives of claim 1 further having a

detection module located on the track plate to detect the positioning condition of the

guiding plate and the moving plate.

16. The loading and unloading module for optical disk drives of claim 15, wherein the

15 detection module includes a first sensor, a second sensor, a third sensor and a fourth

sensor, the guiding plate triggering the first sensor and the second sensor, the moving

plate triggering the third sensor and the fourth sensor.

17. The loading and unloading module for optical disk drives of claim 16, wherein the

first sensor and the second sensor are triggered by a bulged rim of the guiding plate,

20 and the third sensor and the fourth sensor are triggered by a first trigger plate and a

second trigger plate located on the moving plate.